REVISIONS IN YELLOW MAKE THE 2011 NEC CODE LANGUAGE MATCH THE 2014 NEC CODE LANGUAGE. FORMATTING CHANGES IN THE 2014 NEC CODE ARE NOT HIGHLIGHTED.

REVISIONS IN GREEN ARE 2014 NEC CHANGES PROPOSED BY THE CRC COMMITTEE, WHICH ALSO INCLUDE ERRATA FOUND IN ARTICLE VI.

REVISIONS IN TURQUOISE ARE CHANGES RECOMMENDED BY THE CRC COMMITTEE IN THE MEETING HELD ON 03-17-14 PLUS PREVIOUS CHANGES

REVISIONS IN GRAY ARE FORMATTING CHANGES ITENDED TO SIMPLIFY WORDING OR FORMATTING. CODE TEXT WHICH IS NOT AMENDED WILL BE REMOVED.

ARTICLE VI. ELECTRICAL CODE

Sec. 10-51. Adoption of *National Electrical Code* ([~~2011~~] 2014).

The [~~2011~~] 2014 edition of the *National Electrical Code*, promulgated as a standard by the National Fire Protection Association, is adopted and incorporated in this article by reference as if fully set forth, except as it is amended by the following provisions of section 10-52. Provisions of this article are in addition to the provisions of the *National Electrical Code*. The following provisions coinciding with the provisions of the *National Electrical Code* supersede, or delete, when indicated, the corresponding provisions of the *National Electrical Code*.

All references within the model codes to any building, electrical, fuel gas, mechanical, plumbing, energy conservation, or existing building code shall be construed to be a reference to the building code specifically adopted by reference in Articles II through XIII of this chapter.

Sec. 10-52. Amendments to the adopted chapters of the *National Electrical Code* ([~~2011~~] 2014).

Additions to the National Electrical Code (NEC) are shown as underlined text. Deletions of the NEC are shown as bracketed [~~strikethroughs~~].

Article 200.6 Means of Identifying Grounded Conductor. Paragraphs (A), (A)(1), (A)(2), A(3) and paragraphs (B), (B)(1), (B)(2), (B)(3) and (B)(4) are amended as follows, all other Code text remains as is:

(A) Sizes 10 [~~6~~] AWG or Smaller. An insulated grounded conductor of 10 [~~6~~] AWG or smaller shall be identified by one of the following means:

(A)(1) A continuous white outer finish shall be used on all systems with a voltage of less than 150 Volts between the grounded and ungrounded conductors.

(A)(2) A continuous gray outer finish shall be used on all systems with a voltage of 150 Volts or higher between the grounded and ungrounded conductors.

~~(A)(3) [Three continuous white or gray stripes along the conductor's entire length on other than green insulation.~~]

(B) Sizes 8 [~~eight~~] [4] AWG or Larger. An insulated grounded conductor of 8 [~~eight~~] [~~4~~] AWG or larger shall be identified by one of the following means:

(B)(1)A continuous white outer finish shall be used on all systems with a voltage of less than 150 Volts between the grounded and ungrounded conductors.

(B)(2)A continuous gray outer finish shall be used on all systems with a voltage of 150 Volts or higher between the grounded and ungrounded conductors.

~~(B)(3)[Three continuous white [or gray] stripes along the conductor's entire length on other than green insulation.~~]

(B)((3)[~~(4)~~] At the time of installation, by a distinctive white or gray marking tape at its terminations. The [~~This~~] marking tape shall encircle the conductor or insulation a minimum of two-inches in length.

Article 200.7 Use of Insulation of a White or Gray Color or with Three Continuous White or Gray Stripes is amended as follows, all other Code text remains as is:

200.7 Use of Insulation of a White or Gray Color or with Three Continuous White or Gray Stripes on Cables Listed in Article 334

Article 210.5 Identification for Branch Circuits. Paragraphs (C)(1)(a), (C)(2), (C)(2)(a) and (C)(2)(b) are amended as follows, all other Code text remains as is:

(C)(1)(a) *Means of Identification*. Conductors 10 AWG and smaller shall have factory colored insulation. Conductors 8 [~~eight~~] AWG and larger may have factory colored insulation or black insulation with a marking tape that encircles the insulation a minimum of two-inches in length. Color of insulation or marking tape shall comply with the following table: [~~The means of identification shall be permitted to be separate color coding, marking tape, tagging, or other approved means.~~]

UNGROUNDED CONDUCTOR IDENTIFICATION COLORS FOR ELECTRICAL SYSTEMS

208Y/120 Volts	120/240 Volts	480Y/277 Volts	120/240 Volts
Three phase	Three phase	Three phase	Single phase
A - Black B - Red	A - Black B - Orange (high leg)	A - Purple B - Brown	A - Black B - Red

C - Blue	C - Blue	C - Yellow	

Informational Note 1: Conductors used for switch legs shall be the same color as the branch circuit conductors.

Informational Note 2: Conductors used for travelers may be of the same color as its associated switch leg or may be any of the above colors not used on the project. The colors designated for the grounded conductor, grounding conductors or for identification of the high leg may not be used for travelers.

Informational Note 3: In existing installations where modifications to the electrical system are required, and there is an established system of colors for ungrounded conductors, the existing color coding system may continue to be used.

(C)(2) Branch Circuits Supplied From Direct-Current Systems. Where a branch circuit is supplied from a dc system operating at more than 50 volts, each ungrounded conductor of 8 [~~4~~] AWG or larger shall be identified by polarity at all termination, connection, and splice points by marking tape, tagging, or other approved means; each ungrounded conductor 10 [~~6~~] AWG or smaller shall be identified by polarity at all termination, connection, and splice points in compliance with 210.5(C)(2)(a) and (b). The identification methods used for conductors originating in each branch-circuit panelboard or similar branch-circuit distribution equipment shall be documented in a manner that is readily available or shall be permanently posted at each branch-circuit panelboard or similar branch-circuit distribution equipment.

(C)(2)(a) *Positive Polarity, sizes 10 [~~6~~] AWG or Smaller*. Where the positive polarity of a dc system does not serve as the connection point for the grounded conductor, each positive grounded conductor shall be identified by one of the following means:

(C)(2)(b) *Negative Polarity, sizes 10 [~~6~~] AWG or Smaller.* Where the negative polarity of a dc system does not serve as the connection point for the grounded conductor, each negative grounded conductor shall be identified by one of the following means:

Article 210.19 Conductors – Minimum Ampacity and Size. Paragraph (A)(1)(a) is amended as follows, all other Code text remains as is:

(A)(1)(a) Where a branch circuit supplies continuous loads or any combination of continuous and noncontinuous loads, the minimum branch-circuit conductor size [~~, before the application of any adjustment or correction factors,~~] shall have an allowable ampacity not less than the noncontinuous load plus 125 percent of the continuous load. No conductor smaller than 12 AWG copper or 8 AWG aluminum shall be used; however, conductors smaller than 12 AWG copper may be used for taps if part of an approved assembly.

Article 210.52 Dwelling Unit Receptacle Outlets. Paragraph (B)(1) and its Exception No. 2 are amended as follows, all other Code text remains as is:

(B)(1) Receptacle Outlets Served. In the kitchen, pantry, breakfast room, dining room, or similar area of a dwelling unit, the two or more 20-ampere small-appliance branch circuits required by 210.11(C)(1) shall serve all wall and floor receptacle outlets covered by 210.52(A), and all countertop outlets covered by 210.52(C) [~~, and receptacle outlets for refrigeration equipment~~]. Receptacle outlets for refrigeration equipment shall [~~be supplied from an individual branch circuit rated 20 amps or greater~~] not be connected to the small-appliancebranch circuitst.

[~~*Exception No. 2: The receptacle outlet for refrigeration equipment shall be permitted to be supplied from an individual branch circuit rated 15 amperes or greater.*~~]

Article 210.63 Heating, Air-Conditioning, and Refrigeration Equipment Outlet. Paragraph is amended as follows, all other Code text remains as is:

210.63 Heating, Air-Conditioning, and Refrigeration Equipment Outlet. A 125-volt, single-phase, 15- or 20-ampere-rated receptacle outlet shall be installed at an accessible location for the servicing of heating, air-conditioning, and refrigeration equipment. The receptacle shall be located on the same level and within 7.5 m (25 ft) of the heating, air-conditioning, and refrigeration equipment. An integral factory installed or a separate field installed receptacle outlet is permitted to be mounted on the unit. The field installed receptacle outlet shall not be located on panels that are designed to allow access to the air-conditioning or refrigeration equipment or to obscure the equipment nameplate(s). The receptacle outlet shall not be [~~mounted on the equipment and shall not be connected to the circuit serving the equipment.~~] connected to the load side of the equipment disconnecting means. An integral factory installed receptacle outlet does not satisfy the requirement for servicing other equipment that may be located within 7.5 m (25 ft) of it.

Article 210.64 Electrical Service Areas. Paragraph is amended as follows, all other Code text remains as is:

210.64 Electrical Service Areas. At least one 125-volt, single-phase, 15- or 20-ampere-rated receptacle outlet shall be installed within 15 m (50 ft) of the electrical service equipment. The receptacle outlet shall be located on the same level and within sight of the electrical service equipment.

Article 210.70 Lighting Outlets Required. Paragraph is amended as follows, all other Code text remains as is:

210.70 Lighting Outlets Required. Lighting outlets shall be installed where specified in 210.70(A), (B), [~~and~~] (C), and D.

(D) Open Lamps. Lighting outlets required by 210.70(A)(3) and 210.70(C) with open lamps shall be guarded where installed less than seven feet above the working surface measured directly below the lamp or where exposed to physical damage.

Article 215.12 Identification for Feeders. Paragraphs (C)(1)(a), (C)(2), (C)(2)(a) and (C)(2)(b) are amended to read as follows:

(C)(1)(a) *Means of Identification*. Feeders shall be color coded in accordance with Article 210.5(C)(1)(a). [~~The means of identification shall be permitted to be separate color coding, marking tape, tagging, or other approved means.~~]

(C)(2) Feeders Supplied From Direct-Current Systems. Where a feeder is supplied from a dc system operating at more than 50 volts, each ungrounded conductor of 8 [4] AWG or larger shall be identified by polarity at all termination, connection, and splice points by marking tape, tagging, or other approved means; each ungrounded conductor 10 [~~6~~] AWG or smaller shall be identified by polarity at all termination, connection, and splice points in compliance with 210.5(C)(2)(a) and (b). The identification methods used for conductors originating in each feeder panelboard or similar feeder distribution equipment shall be documented in a manner that is readily available or shall be permanently posted at each feeder panelboard or similar branch-circuit distribution equipment.

(C)(2)(a) *Positive Polarity, sizes 10 [~~6~~] AWG or Smaller.* Where the positive polarity of a dc system does not serve as the connection point for the grounded conductor, each positive grounded conductor shall be identified by one of the following means:

(C)(2)(b) *Negative Polarity, sizes 10 [~~6~~] AWG or Smaller.* Where the negative polarity of a dc system does not serve as the connection point for the grounded conductor, each negative grounded conductor shall be identified by one of the following means:

Article 220.14 Other Loads – All Occupancies. Paragraph J is amended as follows, all other Code text remains as is:

(J) Dwelling Occupancies. In one-family, two-family, and multifamily dwellings and in guest rooms or guest suites of hotels and motels, the outlets specified in (J)(1), (J)(2), and (J)(3) are included in the general lighting load calculations of 220.12. No additional load calculations shall be required for such outlets. A maximum of eight [~~receptacle~~] outlets or a load of 1440 VA, consisting of receptacles at 180 VA each plus luminaires at their maximum allowed lamp wattage shall be permitted on a 15 A branch circuit and a maximum of 10 [~~receptacle~~] outlets or a load of 1920 VA, consisting of receptacles at 180 VA each plus luminaires at their maximum allowed lamp wattage shall be permitted on a 20 A branch circuit. When using the optional VA method in lieu of the total number of outlets described in the previous sentence, the VA load shall be computed in accordance 210.20(A) – receptacles at 100% plus luminaires at 125%.

Article 230.2 Number of Services. Paragraph F is added as follows, all other Code text remains as is:

(F) Color Coding. Service entrance conductors shall be color coded in accordance with Article 210.5(C)(1)(a).

Article 230.30 Installation. Paragraph B is amended as follows, all other Code text remains as is:

(B) Wiring Methods. Underground service conductors shall be installed in accordance with the applicable requirements of this Code covering the type of wiring methods used and shall be limited to the following methods as modified below: [~~Wiring methods (3) through (10) may be used when encased in a minimum 75 mm (3 in.) thick concrete envelope. Wiring methods (1) and (2) do not require concrete encasement.~~]

(1) Type RMC conduit
(2) Type IMC conduit
(3) Type NUCC conduit - encased in concrete
(4) Type HDPE conduit - encased in concrete
(5) Type PVC conduit - encased in concrete
(6) Type RTRC conduit - encased in concrete
[~~(7) Type IGS cable~~]
[~~(8) Type USE conductors or cables~~]
[~~(9) Type MV or MC cable identified for direct burial applications~~]
10) Type MI cable, where suitably protected against physical damage and corrosive conditions.

Where encasement is required above, it shall be a minimum 75 mm (3 in.) thick concrete envelope.

Article 230.43 Wiring Methods for 1000 Volts, Nominal, or Less. Paragraph is amended as follows all other Code text remains as is:

230.43 Wiring Methods for [~~600~~] 1000 Volts, Nominal, or Less. Service-entrance conductors shall be installed in accordance with the applicable requirements of this *Code* covering the type of wiring method used and shall be limited to the following methods as modified below: [~~methods (3), (4), (8), (9), and (10) of the following methods for service entrance conductors inside of buildings and methods (1) through (19) of the following methods for service entrance conductors outside of buildings:~~]

[~~(1) Open wiring on insulators~~]
[~~(2) Type IGS cable~~]
(3) Rigid metal conduit (RMC)
(4) Intermediate metal conduit (IMC)
(5) Electrical metallic tubing (EMT)
[~~(6) Electrical nonmetallic tubing (ENT)~~]

~~[(7) Service-entrance]~~
(8) Wireways – metallic construction only
(9) Busways
(10) Auxiliary gutters – metallic construction only
(11) Rigid polyvinyl chloride conduit (PVC) - encased in concrete
(12) Cablebus
~~[(13) Type MC cable]~~
(14) Mineral-insulated, metal-sheathed cable
~~[(15) Flexible metal conduit **[FMC]** not over 1.8 m (6 ft) long or liquidtight flexible metal conduit **[LFMC]** not over 1.8 m (6 ft) long between raceways, or between raceway and service equipment, with equipment bonding jumper routed with the flexible metal conduit or the liquidtight flexible metal conduit according to the provisions of 250.102(A), (B), (C), and (E)]~~
~~[(16) Liquidtight flexible nonmetallic conduit **[LFNC]**~~
(17) High density polyethylene conduit (HDPE) - encased in concrete
(18) Nonmetallic underground conduit with conductors (NUCC) - encased in concrete
(19) Reinforced thermosetting resin conduit (RTRC) - encased in concrete

Where encasement is required above, it shall a minimum 75 mm (3 in.) thick concrete envelope.

Article 250.52 Grounding Electrodes. Paragraphs (A)(3)(1) and (A)(5)(b) are amended as follows, all other Code text remains as is:

Informational Note to (A)(3)(1): A piece of reinforcing steel conforming to (1) above which has additional length, without splice, extended up past the sole plate of the structure to which the grounding electrode may be connected to and extended to the service equipment is acceptable. The portion of the reinforcing steel extending above the sole plate shall be painted green and the paint removed from the bar where the connection is made to the grounding electrode conductor.

(A)(5)(b) Rod-type grounding electrodes of stainless steel and copper or zinc coated steel shall be at least 15.87 mm (5/8 in.) diameter[~~, unless listed~~].

Article 250.118 Types of Equipment Grounding Conductors. The first sentence of Paragraph 118 is amended as follows, all other Code text remains as is:

As a minimum the equipment grounding conductor shall consist of a conductor as described in item (1) as follows and may be supplemented by any of the other means described in items (2) through (14) as follows: [~~The equipment grounding conductor run with or enclosing the circuit conductors shall be one or more or a combination of the following:~~]

Article 250.119 Identification of Equipment Grounding Conductors. Paragraphs (A), (A)(1) and its Exception , and (A)(2)c are amended as follows, all other Code text remains as is:

(A) Conductors 8 [4] AWG and Larger. Equipment grounding conductors 8 [4] AWG and larger shall comply with 250.119(A)(1) and (A)(2).

(A)(1) An insulated or covered conductor 8 [4] AWG and larger shall be permitted, at the time of installation, to be permanently identified as an equipment grounding conductor at each and every point where the conductor is accessible.

Exception: Conductors 8 [4] AWG and larger than shall not be required to be marked in conduit bodies that contain no splices or unused hubs.

(A)(2)c. Marking the insulation or covering with green tape, a minimum of two-inches in length, or green adhesive labels at the termination.

Article 300.5 Underground Installations. Paragraph (D)(3)is amended to read as follows, all other Code text remains as is:

[~~**(3) Service Conductors.** Underground service conductors that are not encased in concrete and that are buried 450 mm (18 in.) below grade shall have their location identified by a warning ribbon that is placed in the trench at least 300 mm (12 in.) above the underground installation.~~]

Table 310.15(B)(3)(c) Ambient Temperature Adjustment for [~~Circular~~] *Raceways or Cables Exposed to Sunlight on or Above Rooftops, is amended as follows, all other Code text remains as is:*

Informational Note to Table 310.15(B)(3)(c): The temperature adders in Table 310.15(B)(3)(c) are based on the [~~results of averaging the~~] measured temperature rise above the local climatic ambient temperatures due to sunlight heating.

Informational Note to Table 310.15(B)(3)(c): For purposes of calculating the temperature adjustment factors for installations in San Antonio, the design ambient temperature is 98.5°F (0.4%) per 2009 ASHRAE Handbook, Chapter F-14.

Article 314.19 Boxes Enclosing Flush Devices. Paragraph is amended as follows, all other Code text remains as is:

314.19 Boxes Enclosing Flush Devices. Boxes used to enclose flush devices shall be of such design that the devices will be completely enclosed on back and sides and substantial support for the devices will be provided. Screws for supporting the box shall not be used in

attachment of the device contained therein. Boxes for flush devices shall have a minimum volume of 221 cm^3 (13.5 $in.^3$).

ARTICLE 320 Armored Cable: Type AC, is repealed.

ARTICLE 326.10 Uses Permitted. Paragraphs (1) and (3) are amended as follows, all other Code text remains as is:

~~[(1) Service-entrance conductors]~~

~~[(3) Service conductors, underground]~~

ARTICLE 330.10 Uses Permitted. Paragraphs (A)(1) and (B)(3) are amended as follows, all other Code text remains as is:

(A)(1) For ~~[services,]~~ feeders and branch circuits.

~~**[(B)(3) Installed as Service-Entrance Cable.** Type MC cable installed as service-entrance cable shall be permitted in accordance with 230.43.]~~

Article 330.40 Boxes and Fittings. Paragraph is amended as follows, all other Code text remains as is:

330.40 Boxes and Fittings. Fittings used for connecting Type MC cable to boxes, cabinets, or other equipment shall be listed and identified for such use. Additionally, all fittings shall be equipped with an anti-shorting bushing.

Article 330.104 Conductors. Paragraph is amended as follows, all other Code text remains as is:

330.104 Conductors. Conductors shall be of copper, aluminum, copper-clad aluminum, nickel or nickel-coated copper, solid or stranded. The minimum conductor size shall be 12 ~~[18]~~ AWG copper, nickel or nickel-coated copper, or 8 [eight] ~~[12]~~ AWG aluminum or copper-clad aluminum.

Article 330.112 Insulation. Paragraph is amended as follows, all other Code text remains as is:

330.112 Insulation. Insulated conductors shall comply with 330.112(A) or (B) and shall be color coded per the requirements of this chapter.

Article 330.116 Sheath. Paragraph is amended as follows, all other Code text remains as is:

330.116 Sheath. Metallic covering shall be ~~[one of the following types: smooth metallic sheath, corrugated metallic sheath,~~] interlocking metal tape armor. The metallic sheath shall be continuous and close fitting. A nonmagnetic sheath or armor shall be used on single conductor Type MC. Supplemental protection of an outer covering of corrosion-resistant material shall be permitted and be required where such protection is needed. The sheath shall not be used as a current-carrying conductor. ~~[The sheath of branch circuit wiring shall be factory color-coded its entire length by the manufacturer as follows: blue for general use and green for use in health care facilities, where permitted by Article 517; however, color coding is not required for cable listed for direct burial, concrete encasement or in wet locations. The sheath may be field painted after it has passed all required inspections.]~~ The cutting of the interlocking metal tape armor shall be performed with an approved rotary cutting tool designed for cutting MC cable.

Article 334.10 Uses Permitted. Paragraph is amended as follows, all other Code text remains as is:

334.10 Uses Permitted. Type NM, Type NMC, and Type NMS cables shall be permitted to be used in the following, except as prohibited in 334.12:

~~[(3) Other structures permitted to be of Types III, IV, and V construction except as prohibited in 334.12. Cables shall be concealed within walls, floors, or ceilings that provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies.]~~

~~[Informational Note No. 1: Types of building construction and occupancy classifications are defined in NFPA 220-2009, Standard Types of Building Construction, or the applicable building code, or both.]~~

~~[Informational Note No. 2: See Informative Annex E for determination of building types [NFPA 220, Table 3-1].]~~

~~[(4) Cable trays in structures permitted to be Types III, IV, or V where the cables are identified for the use.]~~

~~[Informational Note: See 310.15(A)(3) for temperature limitation of conductors.]~~

(6) Dwelling units used as Type B Occupancies, limited to churches only, as described in the International Building Code (IBC) Section 303.1.2, with an occupant load of less than 50 persons.

(7) Dwelling units used as Single Station Barber and Beauty Salons which comply with the requirements of the Unified Development Code (UDC) Section 35-399.01.

(8) Home Occupations which comply with the requirements of the Unified Development Code (UDC) section 35-378, excluding those used for medical purposes for the treatment of patients.

(9) The residential portion of a Live-Work Unit which meets the definition of and complies with the requirements of the International Building Code (IBC) Section 419. All conductors in the non-residential portion of the structure shall be installed in an approved non-open wiring method.

ARTICLE 338.10 Uses Permitted. Paragraph (A) is amended as follows, all other Code text remains as is:

~~[**(A) Service-Entrance Conductors.** Service-entrance cable shall be permitted to be used as service-entrance conductors and shall be installed in accordance with 230.6, 230.7, and Parts II, III, and IV of Article 230.]~~

ARTICLE 348.12 Uses Not Permitted. Paragraph is amended as follows, all other Code text remains as is:

(8) For service-entrance conductors

ARTICLE 350.12 Uses Not Permitted. Paragraph is amended as follows, all other Code text remains as is:

(3) For service-entrance conductors

ARTICLE 356.12 Uses Not Permitted. Paragraph is amended as follows, all other Code text remains as is:

(5) For service-entrance conductors

ARTICLE 362.12 Uses Not Permitted. Paragraph is amended as follows, all other Code text remains as is:

(10) For service-entrance conductors

Article 362.20 Size. Paragraph (B) is amended as follows, all other Code text remains as is:

(B) Maximum. ENT larger than metric designator 27 (trade size 1) ~~[53 (trade size 2)]~~ shall not be used.

ARTICLE 366.12 Uses Not Permitted. Paragraph is amended as follows, all other Code text remains as is:

(3) For service-entrance conductors if nonmetallic

ARTICLE 378.12 Uses Not Permitted. Paragraph is amended as follows, all other Code text remains as is:

(6) For service-entrance conductors

ARTICLE 394, Concealed Knob-and-Tube Wiring, is repealed.

ARTICLE 398.12 Uses Not Permitted. Paragraph is amended as follows, all other Code text remains as is:

398.12 Use Not Permitted. Open wiring on insulators shall not be installed where concealed by the building structure or as service-entrance conductors.

Article 400.7 Uses Permitted. Paragraph (A)(2) is amended as follows, all other Code text remains as is:

(A)(2) Wiring of luminaires (fixtures) when supplied as part of a UL listed luminaires.

Article 408.30 General. Paragraph is amended as follows, all other Code text remains as is:

408.30 General. All panelboards shall have a rating not less than the minimum feeder capacity required for the load calculated in accordance with Part III, IV, or V of Article 220, as applicable. Panelboards containing the 120 Volt branch circuits serving the interior of one- and two-family dwelling units shall be located in the interior of the structure in a readily accessible location.

Article 424.19, Disconnecting Means. Paragraph is amended as follows, all other Code text remains as is:

424.19 Disconnecting Means. Means shall be provided to simultaneously disconnect the heater, motor controller(s), and supplementary overcurrent protective device(s) of all fixed electric space-heating equipment from all ungrounded conductors. Where heating equipment is supplied by more than one source, feeder, or branch circuit, the disconnecting means shall

be grouped and marked. The disconnecting means specified in 424.19(A) and (B) shall have an ampere rating not less than 125 percent of the total load of the motors and the heaters and shall be lockable in accordance with 110.25. [~~The provision for locking or adding a lock to the disconnecting means shall be installed on or at the switch or circuit breaker used as the disconnecting means and shall remain in place with or without the lock installed.~~] An integral factory installed or a separate field installed disconnecting means is permitted. An accessible field installed disconnecting means may be installed on or within sight of the equipment. The branch circuit serving the equipment shall be clearly marked on the equipment or the disconnecting means.

Article 440.14 Location. Paragraph is amended as follows, all other Code text remains as is:

440.14 Location. Disconnecting means shall be located within sight from and readily accessible from the air-conditioning or refrigerating equipment. An integral factory installed or a separate field installed disconnecting means is permitted. A field installed disconnecting means may be installed on the equipment. The branch circuit serving the equipment shall be clearly marked on the equipment or the disconnecting means. [~~The disconnecting means shall not be located on panels that are designed to allow access to the air conditioning or refrigeration equipment or to obscure the equipment nameplate(s).~~] The disconnecting means shall not be located on panels that are designed to allow access to the air-conditioning or refrigeration equipment or to obscure the equipment nameplate(s).

Article 525.20(B) Wiring Methods. Paragraph B is amended as follows, all other Code text remains as is:

(B) Flexible Cords and Single–Conductor Cables. Flexible cords shall be permitted only in sizes 12 AWG or larger and shall contain a separate grounding conductor. A maximum of one 25 foot (7.65 m) extension cord~~s~~ may be connected to each individual receptacle provided as part of the manufacturers listed generator. Single-conductor cable shall be permitted only in sizes 2 AWG or larger.

Article 600.32 Neon Secondary-Circuit Wiring, over 1000 Volts, Nominal. Paragraphs (A)(1) and (A)(3) are amended as follows, all other Code text remains as is:

(A)(1) Installation. Conductors shall be installed in rigid metal conduit, intermediate metal conduit, [~~liquidtight flexible nonmetallic conduit,~~] flexible metal conduit, liquidtight flexible metal conduit, electrical metallic tubing, metal enclosures; on insulators in metal raceways; or other equipment listed or use with neon secondary circuits over 1000 volts.

(A)(3) Size. Conduit or tubing shall be a minimum of metric designator 12 (trade size 3/8"). [~~16 (trade size 1/2")~~]

ARTICLE 604 Manufactured Wiring Systems. Paragraphs 604.1, 604.4 Exception No. 1, 604.6(A)(1) and 604.7 are amended as follows, all other Code text remains as is:

604.1 Scope. The provisions of this article apply to field-installed wiring using off-site manufactured subassemblies for lighting and underfloor power branch circuits~~[, remote-control circuits, signaling circuits, and communications circuits]~~ in accessible areas.

604.4 Uses Permitted.
Exception No.1: In concealed spaces, one end of tapped cable shall be permitted to extend into hollow walls of manufactured wall systems, with removable panels for access to the wiring system, for direct termination at switch and outlet points.

604.6 Construction.
(A)(1) Cables. Only type MC cables conforming to item (2), below~~, and color-coded per the requirements of this Code~~ are permitted. ~~[Cables shall be one of the following:]~~

604.7 Installation. Manufactured wiring systems shall be secured and supported in accordance with the applicable cable or conduit article for the cable or conduit type employed. All manufactured wiring system junction boxes shall be grounded in accordance with the manufacturer's instructions and all unused openings shall be covered with a factory supplied cover.

Sec. 10-53. Electrical provisions.

(a) **General.** The provisions of this section shall apply to the design, construction, installation, use and maintenance of electrical systems and equipment. Where differences occur between provisions of this code and referenced codes or standards, the provisions of this code shall apply.

(b) **Equipment and door labeling.** The disconnecting means for each service, feeder or branch circuit originating in a switchboard or panelboard shall be legibly and durably marked to indicate its purpose unless such purpose is clearly evident to the code official. Doors into electrical panel rooms shall be marked with a plainly visible and legible sign stating ELECTRICAL ROOM or similar approved wording.

(c) **TOPS (Temporary on Permanent Set) Permit.** The section outlines the requirements for obtaining a permit to allow the connection of the new or existing electrical service to CPS Energy prior to having all final inspections completed on a project. The issuance of a TOPS permit and the subsequent connection to the utility company service does not allow an owner or the occupants to occupy the building or structure until a C of O has been issued. The above permit does not waive any of the applicable provisions of Articles IV and VIII.

(1) **Sec. 10-1302.3.1 Permit Application.** A licensed electrical contractor registered with the City must make the application for the TOPS permit. The electrical

contractor must also request that the TOPS permit be attached to the main building permit in the City's computer system. The TOPS permit is required in addition to the main electrical permit for the project.

(2) The following are the general conditions for obtaining a TOPS permit for new construction and may be modified by the code official to suit project specific conditions:

a. The electrical service must be complete along with all grounding requirements, and the electrical conductors originating from the service equipment must be terminated in an approved electrical manner.

b. The building permit on residential construction shall have an approved foundation and complete frame inspection. The building permit on commercial construction shall have a complete foundation and at minimum a partial frame inspection.

c. On residential construction all trade permits must have approved rough-ins and a complete plumbing top out. On commercial construction all trade permits must have a minimum of a partial rough in including a partial plumbing top out.

d. The plumbing sewer permit shall have an approved final inspection on both commercial and residential.

(3) **Existing Construction.** The following are the general conditions for obtaining a TOPS permit for existing construction and may be modified by the code official to suit project specific conditions:

a. The electrical service must be in good condition and comply with the City electrical code including all grounding requirements.

b. The electrical loads originating from the existing service equipment, that will not be utilized for construction power, must be disconnected and safeguarded from accidental contact with an energized electric bus bar.

c. Temporary GFCI protected outlets must be provided at the service equipment location to be used during construction related activities.

d. All necessary and or required trade permits must be obtained prior to giving a final approval to CPS to energize the service equipment.

(d) Electrified fences or barriers. Electrified fences or barriers conforming to the following requirements shall be permitted:

(1) Electrified fences or barriers shall conform to the requirements of the International Electrotechnical Commission (IEC) Standard IEC 60335-1 -

Household and similar electric appliances - Safety - Part 1: General Requirements (Reference number IEC 60335-1:2001+A1:2004(E)) and Standard IEC 60335-2 - Household and similar electric appliances -Safety - Part 2-76: Particular requirements for electric fence energizers (Reference number CEI/IEC 60335-2-76:2002+A1:2006) or Underwriters Laboratories Inc. (UL) Standard number 60335-2. Safety of Household and Similar Electrical Appliances, Part 1: General Requirements have.

(2) Electrified fences or barriers shall be limited to outdoor storage areas only in zoning designations: Light Industrial District (L), General Industrial District (I-1) and Heavy Industrial District (I-2). Unless specifically designated in this subsection, electrified fences or barriers shall not be permitted in any zoning district.

(3) The exterior (public side) perimeter of the electrified fence or barrier shall be protected by an additional non-electrified fence or wall and shall be separated by six-inches.

(4) The height of the non-electrified fence or wall shall be no less than six feet in height and no more than eight feet in height at its highest point.

(5) The height of the electrified fence or barrier shall be no more than 10 feet in height at its highest point measured at existing grade.

(6) Electrified fences or barriers shall be clearly marked with warning signs. The warning signs shall be placed at each entrance to the property on the electrified fence or barrier and a maximum of 40 feet on centers thereafter around the entire perimeter of the electrified fence. The warning signs shall be placed above the non-electrified fence or wall and be clearly visible from the ground on both sides of the electrified fence or barrier. The warning signs shall be printed on both sides with the following "WARNING ELECTRIFIED FENCE" and contain the international symbol for an electrical hazard. The wording shall be written in both English and Spanish. In addition each entrance shall have a sign noting: "Electric Barrier registered with the San Antonio Development Services Department - City Code 10-53(e)." These signs will be reflective with a minimum two inch letter height, minimum stroke of 0.5 inch and with a contrasting background. Arabic numbers and alphabetical letters shall be used.

(7) Electrified fences or barriers may be energized only during the hours when the general public does not have legal access to the protected property.

(8) Electrified fences or barriers shall not be installed within five feet of a sidewalk or public right-of-way nor shall they be installed within 300 feet of a property line for a residence, or from a public, private, or parochial school, day care facility, church or parkland.

(9) Electrified fences or barriers must be designed and certified by an authorized representative of the fence or barrier equipment manufacturer. Upon completion of fence or barrier installation, the fence or barrier equipment manufacturer shall certify that the installation meets all of its design and safety requirements.

(10) Electrified fences or barriers must be permitted with the Development Services Department and on an annual basis with a notarized statement attached to the renewal permit from an authorized representative of the fence or barrier equipment manufacturer that the installation is currently operating in conformity with its safety requirements.

(11) The owner of the stated security equipment and the commercial property owner(s) are required to carry General Liability Insurance in a minimum amount of one million dollars in the aggregate each. Further, proof of insurance shall be required as a condition precedent to secure a permit as required in this subsection and upon each subsequent annual renewal. A failure to maintain proof of insurance for the permitted year shall result in a revocation of the issued permit. Proof of minimum coverage amounts maintained for the preceding year must be provided with each application for renewal. Failure to maintain coverage for the entire previous year shall result in a denial of any permit renewal for five years from the date of expiration or revocation. Proof of insurance shall be underwritten by an organization licensed/authorized to do business in the State of Texas.

(12) A permit holder's decision to appeal acts to modify the provisions of Section 10-14(b), Limitations of authority contained in this chapter and does not require acquiescence of the *Building Official* to appeal his decision. Procedures outlined in Section 10-14 of this chapter shall be followed unless specifically modified herein. The *Building Official* shall be authorized to revoke a permit upon the recommendation of the Chief of Police or designee, itself based on and supported by evidence of violation of this Ordinance. The *Building Official* or designee must send a notice of revocation to the last known address of the permit holder with such notice detailing a time of no more than 10 working days to appeal the *Building Official*'s decision. Notice of appeal must be sent as soon as practical, but no later than 10 working days past the revocation. The *Building Official*'s decision shall be final upon the expiration of the 10 working day period. A filed appeal shall suspend the *Building Official*'s action to revoke the permit. A permit holder shall be entitled to a hearing before the next reasonably available meeting of the Building-related and Fire Codes Appeals and Advisory Board and it shall either affirm or deny the *Building Official*'s decision. The board's decision shall be based on the same evidence reviewed by the *Building Official* and any subsequent information produced. In order to overturn the *Building Official*'s decision, a motion shall be brought in the form of denying the *Building Official*'s decision and require a concurring vote of eight appointed board members.

(13) Electrified fences or barriers shall have a Knox box installed in a location acceptable to the Police and Fire Departments to de-energize the electrified fence or barrier. The Knox box shall be illuminated to a minimum one foot candle.

(14) The power source and Knox box for the electrified fence or barrier shall be installed by an electrical contractor. The power source shall consist of, but not be limited to, the energizer, battery, a means of maintaining a charge on the battery and the load side conductors from the energizer to the perimeter fence conductors.

(e) Electrical Inspections Supervisor. The Electrical Inspections Supervisor of the development services department shall also serve as the master of record for electrical work performed by city electricians.

Sec. 10-54 Fee Schedule.

Electrical License and Registration Fees	
Master	
Renewal—City license (two-year renewal)	$300.00
Annual state license registration and renewal	$85.00
DBA change on master electrical license	$20.00
Journeyman—Renewal of city license (two-year renewal)	$200.00
Restricted residential wireman—Renewal of city license (two-year renewal)	$60.00
Maintenance electrician fee	$60.00
Maintenance technician—Annual (may only perform work not requiring a permit)	$35.00
Electrical Inspection Fee	
Electrical inspection permit fee (basic fee)	$50.00
Service rating:	
0—200 amps	$3.25
201—600 amps	$6.50
601—1000 amps	$8.65
1001—2500 amps	$10.80
Over 2500 amps	$12.50
Temporary meter loop (TML)	$2.15
Temporary on permanent set (TOPS)	$2.15
Work with CPS	$2.15
Gear items	
Switchboards up to four handles	$10.25
Switchboards each additional handle	$1.60
Panelboards/loadcenters	$4.85

Xmfr 1—50 kva	$4.30
Xmfr over 50 kva	$9.70
Safety switch or circuit breaker 30 amps and over	$1.10
Miscellaneous items	
Underground work per 100 linear ft	$1.60
Outside overhead work per 100 linear ft	$1.60
Foundation/concrete encased electrode	$1.60
Controls/low voltage systems over 50 volts	$1.60
Commercial/industrial repair	$9.75
Light fixtures	
HID fixtures	$1.60
Ceiling fans	$1.60
Fluorescent fixtures/ballast retrofits	$.16
Sign circuit	$1.10
General purpose outlets/devices/equipment less than one hp	$.16
Dedicated equipment/appliance outlets 20 amps and over	$1.50
Motors	
1—7.5 hp	$2.15
7.5—25 hp	$3.25
25—50 hp	$8.10
Over 50 hp	$10.80
UPS/generator/distributed generation/storage batteries	
1—5 kw	$1.60
5—50 kw	$3.25
51—300 kw	$4.85
Over 301 kw	$6.50
Temporary wiring	
Power/lights (per every ten outlets)	$3.25
Festival booths	$5.00
Carnival rides	$5.00
Special occupancies	
Class 1, 2, or 3, of article 500 (per each circuit)	$1.00
Medical equipment (MRI, X-ray, scanners, etc.) each circuit	$1.00
Miscellaneous electrical permits Reconnect	
Reconnect inspection	$50.00
30-day (cleaning)	$2.15
180-day (leasing)	$12.90

Maintenance permit fee (electric only)	
Basic permit fee	$50.00
Plus per residential apartment unit	$0.21
Plus per 10,000 sq. ft. of commercial space	$7.00
Building-related and Fire Codes Appeals and Advisory Board Fees	
Building-related and Fire Codes Appeal Fee	$155.00
Appeal to City Council	$155.00
Special Services for Electrical	
After-hour inspection fee (per hour with one-hour minimum)	$100.00
Electrical plan review only (without building plan number)—(per hour with one-hour minimum)	$100.00
Inspection for which no fee is specifically indicated (per hour with one-hour minimum)	$100.00
Inspection schedule fee (free on-line)	$3.00
Permit processing fee	$10.00
Permit extension fee	50% of permit (plus cost of permit)
Re-inspection fee	$50.00
Permit refund fee	$50.00
Open permit review fee	$3.00/permit
Permit amendment fee	$10.00
Rental of facility fees: $125.00/hr (daily min. fee of $250.00; max fee of $1,000.00); security personnel—$15.00/hour/staff (with one-hour minimum); DSD staff—$30.00/hour/staff (with one-hour min.); custodian service—$15.00/hour (with two-hour min.)	

Sec. 10-55 through 10-60. Reserved.